

## STREAMLINING CALIFORNIA'S FUTURE WITH RELIABLE, FLEXIBLE ENERGY

As we move to an Information Age demanding innovation and flexibility, we must rethink some of our practices of yesteryear. In California, the state is meeting the challenges of a changing energy marketplace by revising outdated regulations to make them fit today's realities – while keeping the power supply clean, safe and reliable.

### Distributed Energy Generation

The California Energy Commission understands that one partial remedy for California's power crunch is more distributed energy generation. Customers who install mini-power plants on their properties to supply their own energy are developing "distributed generation." Options range from renewable sources such as wind power and solar energy to natural gas-fired micro-turbines. These generating systems may be combined with electric storage technologies such as batteries and flywheels. Distributed power units are owned by electric or gas utilities, industrial, commercial, institutional or residential energy consumers, or



*Small distributed energy systems like solar and micro turbines will now be easier to interconnect.*

independent energy producers.

Distributed generation systems are one of the paths toward greater energy independence in California. The Energy Commission seeks to encourage distributed generation by streamlining complicated regulations and the processes involving interconnection, standardization, certification, environmental review, and permits. The idea is for developers and consumers to build more of these small plants, thereby lessening the strain on the state power grid and easing the need for larger power plants.

### The Challenge

In the past, the power system favored the large central power plants networked through a high-voltage power transmission network or grid. With the bulk of the state's power produced in a few large facilities, the major utilities had no scaled-down requirements for hook-up by the smaller distributed generators. Some of the red tape involved utility fees, permit hassles, capital costs, and installation delays. The

interconnection requirements were determined, in part, by the California Public Utilities Commission (CPUC) and Rule 21, which specifies the interconnection, operating and metering requirements for these generators.

As technology and the energy market have evolved, Rule 21 has proved burdensome for distributed generation systems that could not afford exorbitant time delays and connection costs. Some companies that want their own power plants have been told it could take as long as a year before the local utility company can make the proper connections to let the system operate. As a result, many would-be distributed

( Cont. )



generation projects were put on hold or cancelled entirely. Applications to build more of these smaller yet efficient plants virtually disappeared during the 1990s.

In the wake of the state's energy deregulation, the Energy Commission moved to revise Rule 21 so that distributed generator manufacturers could produce more plants and hook them up efficiently to the grid. In November 1999 after a series of public workshops and meetings, the Energy Commission issued an Order Instituting Investigation (OII) to encourage more development in distributed generation. By identifying barriers and offering solutions to remove those barriers, the Energy Commission was able to present its findings to the California Public Utilities Commission (CPUC) for eventual adoption. The Energy Commission used a technical support contract known as FOCUS Interconnection (Forging a Consensus on Utility System Interconnection) to formulate fair and uniform interconnection standards. Today, work continues with the CPUC to refine Rule 21.

### **The Opportunity**

By streamlining Rule 21, the state has opened a window of opportunity for small-scale generators from less than 1 kilowatt to larger ones hundreds of megawatts in size. Distributed generation offers several benefits:

- Ensures reliable backup power
- Reduces bottlenecks in the power grid
- Increases clean and renewable energy sources

- Decreases time and costs of traditional interconnection
- Lowers overall energy costs
- Improves power quality and reduces greenhouse gases
- Lessens demand on the state power grid

In adapting Rule 21 to the realities of the energy marketplace, California has already achieved significant reductions in costs for interconnection across all project sizes. The greatest cost reductions are predicted to occur for distributed generation projects less than 1 megawatt in size.

One of the keys behind the new streamlined approach is speeding up the initial review process for distributed generation applications that qualify for what is known as "simplified interconnection." Another important highlight is reducing the delays once associated with certification. Now, if a nationally accredited lab has tested and certified a distributed energy generator, then in many cases the small plant may be installed without further utility review. One vision driving distributed energy is to make it "plug-and-play." Just as a refrigerator is hooked into an outlet without delays and cost, distributed power can simply be connected to the grid, too.

### **On the Horizon**

Distributed generation is a key element in the future of California's energy supply. The state Legislature recently expanded net metering to 1 megawatt, thus making it easier to promote distributed energy generation as cost-efficient.

**The California Energy Commission is dedicated to gathering public input, researching testing and certification processes, and creating practical solutions in distributed generation.**

Each step forward is closely examined, and if viable, is then considered for expansion. The gains achieved with the Investor-Owned Utilities (IOUs) should now be extended to include municipalities, co-operatives, irrigation districts and others. Researchers have identified future research and development opportunities that could expand the applications for Rule 21. In these efforts, the Energy Commission continues to work with the CPUC to make appropriate changes and refinements to Rule 21. As technology and the market demands, the Energy Commission continues to explore the world of distributed energy.

**For More  
Information Contact:**

**Laurie ten Hope • California Energy Commission  
1516 9<sup>th</sup> Street • Sacramento, CA 95814  
(916) 654-5045**

[www.energy.ca.gov/pier](http://www.energy.ca.gov/pier)